



Roadmapping at GTI

- > Pipeline R&D Forum –
Roadmapping Session

Paul Beckendorf

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GTI Background Information

- > Performing and Managing Gas Infrastructure R&D for Over 50 Years
- > Distribution and Transmission Issues Covered
 - Field Operations & Mechanical Engineering
 - Electronics & Telecommunications
 - Civil & Geotechnical Engineering
 - Materials Testing & Evaluation
 - Nondestructive Evaluation (NDE)
 - Pipeline Integrity Management
 - Pipeline Right-of-Way and Security Management
- > Staff – Mix of Technical Training and Utility Experience

The Importance of Gathering Input for Roadmapping

- > Limited Resources – Can't Do It All
- > Provides Focus on the Critical Areas of Need
- > Provides Basis to Share Findings with Other Stakeholders
- > Developing Technologies in a Vacuum, without Input, Doesn't Work (“often heads you down the wrong road”)

Technology Push vs Market Pull

- > Technology Push
 - Generally doesn't work
 - However, running new technology concepts “up the flag pole” often stimulates ideas
- > Market Pull
 - The market drives the technology development path
 - Incidentally, some technology developments are so critical that parallel paths are taken, for example:
 - > Leak detection
 - > Internal inspection of pipelines

Gathering & Sharing Industry Needs, & New Ideas

- > Gathering Information from the Gas Industry on Their Needs
- > Collaborating with AGA, PRCI and Others on Needs List
- > Gathering Information on Technology Developments from Other Industries – Water, Sewer, Electric, Medical, Telecommunications
- > Participating in Forums to Assure that Government Agencies (DOT, DOE, DOD) are Aware of Industry Needs
- > Providing Forums to Inform and Educate Gas Industry, including Manufacturers, on Technology Development Progress

Roadmapping Process

- > Gather Ideas, Needs
- > Prioritization of Industry Needs
- > Verify Needs Prioritization with Industry
- > Gather More Details
 - Attributes (“must haves” – size, performance, etc.)
 - Estimated cost of potential solution
 - Timing of need for potential solution (“I need it next week!”)
 - Other considerations – safety, training, environmental issues, etc.
 - Example: RAPTOR

Roadmapping Process (continued)

- > Identify Potential Sponsors – Seek Technology Champion(s)
- > Refine Needs Description to Match Interests of Potential Sponsors
- > Formally Propose Technology Solution(s) to Potential Partners
- > Actively Seek to Form Stakeholder Collaborations to Leverage Investments

Past Results – Year to Year Consistency

Year	Top Technology Needs
2004	Facility locating from above ground Remote leak detection Pipeline integrity inspection (external and internal) Keyhole applications
2002	Facility locating from above ground Remote leak detection Pipeline integrity inspection (external and internal) Keyhole applications
2000	Facility locating from above ground Remote leak detection Keyhole applications Trenchless applications

Summary – For GTI, Keys to Successful Roadmapping

- > Listening to the Gas Industry and Others
 - Spending time understanding their issues
- > Sharing Information with Key Stakeholders
- > Positioning GTI to be Ready to Respond to Industry Needs

Questions?

Paul Beckendorf

Director

Gas Technology Institute

847 768 0889

paul.beckendorf@gastechnology.org